Claims

1. A welding apparatus for welding an element to a component, the apparatus comprising:

a) a hand held welding gun;

b) a welding gauge that is fixed to the component; and

c) a positioner attached to the gun;

wherein the positioner is calibrated to maintain a known distance between the element and the component, when the positioner is in physical contact with the gauge.

2. The apparatus of Claim 1, wherein the element is a metal stud and the component is a metal sheet.

3. The apparatus of Claim 2, wherein the metal stud and the metal sheet are parts of a motor vehicle.

4. The apparatus of Claim 1, further comprising an alignment feature in the welding gauge.

5. The apparatus of Claim 4, wherein the alignment feature is a hole.

6. The apparatus of Claim 5, wherein depth of the hole is adjustable.

7. The apparatus of Claim 4, wherein the alignment feature is a pin.

8. The apparatus of Claim 4, wherein the gauge has at least three alignment features.

9. The apparatus of Claim 8, wherein the alignment features are a combination of holes and pins.

10. The apparatus of Claim 4, wherein a positioner utilizes an alignment feature.

11. The apparatus of Claim 6, wherein a positioner is inserted into the hole.

12. The apparatus of Claim 8, further comprising at least three positioners.

13. The apparatus of Claim 12, wherein each positioner utilizes an alignment feature.

14. The apparatus of Claim 12, wherein the alignment features are placed in a triangle pattern around the element.

15. A welding system for joining a piece to a part, the system comprising:

a) a hand welder operably welding the piece to the part;

b) a holder operably holding the element relative to the part;

c) a positioner offset behind the anterior end of the holder and being attached to the welder; and

d) a welding gauge coupled to the part when the positioner is in contact with the gauge, the piece being a distance from the part.

16. The apparatus of Claim 15, wherein the piece is a metal stud and the part is a metal sheet.

17. The apparatus of Claim 16, wherein the metal stud and the metal sheet are parts of a motor vehicle.

18. The apparatus of Claim 15, further comprising an alignment feature in the welding gauge.

19. The apparatus of Claim 18, wherein the alignment feature is a hole.

20. The apparatus of Claim 19, wherein depth of the hole is adjustable.

21. The apparatus of Claim 18, wherein the alignment feature is a pin.

22. The apparatus of Claim 18, wherein the gauge has at least three alignment features.

23. The apparatus of Claim 22, wherein the alignment features are a combination of holes and pins.

24. The apparatus of Claim 18, wherein a positioner utilizes an alignment feature.

25. The apparatus of Claim 20, wherein a positioner is inserted into the hole.

26. The apparatus of Claim 22, further comprising at least three positioners.

27. The apparatus of Claim 26, wherein each positioner utilizes an alignment feature.

28. The apparatus of Claim 26, wherein the alignment features are placed in a triangle pattern around the element.

29. A process including a welding gauge to weld an element to a component using a hand held welder, the process comprising:

a) attaching the welding gauge to the component;

b) holding the element in the welder;

c) setting the element a predetermined distance from the component;

d) welding the element to the component.

30. The process of Claim 29, wherein the element is a metal stud and the component is a metal sheet.

31. The process of Claim 30, wherein the metal stud and the metal sheet are parts of a motor vehicle.

32. The process of Claim 29, further comprising an alignment feature in the welding gauge.

33. The process of Claim 32, wherein the alignment feature is a hole.

34. The process of Claim 33, further comprising adjusting the depth of the hole.

35. The process of Claim 32, wherein the alignment feature is a pin.

36. The process of Claim 32, wherein the gauge has at least three alignment features.

37. The process of Claim 36, wherein the alignment features are a combination of holes and pins.

38. The process of Claim 32, wherein a positioner utilizes an alignment feature.

39. The process of Claim 34, wherein a positioner is inserted into the hole.

40. The process of Claim 36, further comprising at least three positioners.

41. The process of Claim 40, wherein each positioner utilizes an alignment feature.

42. The process of Claim 40, wherein the alignment features are placed in a triangle pattern around the element

43. The process of Claim 29, further comprising aligning the welding gauge on a feature of the component that is operable for alignment.